Title

Foldable Pivot Leg Assembly for Banquet Table with Plastic Tabletop

Background of the Present Invention

Field of Invention

The present invention relates to a banquet table, and more particularly to a foldable pivot leg assembly for a banquet table with a plastic tabletop, wherein the foldable pivot leg assembly is directly mounted under the plastic tabletop for enhancing the supporting structure and the portability of the banquet table.

Description of Related Arts

Banquet tables have become very popular since the tables are economy, cheap and foldable that can be quickly and easily folded for carriage and storage and unfolded for use. Especially when some participant-intensive activities take place in multi-function rooms or designated areas, the banquet tables can be temporary set up in minutes. After the functions, the banquet tables can be quickly and neatly folded up for storage.

A conventional banquet table comprises a tabletop and a pair of table legs foldable mounted underneath the tabletop. For example, U.S. patent 5,957,061 generally suggests a banquet table that two table legs are pivotally mounted at two opposed side end portions of the tabletop. Since the two table legs support the tabletop at two side end portions thereof, when a downward loading force is applied on the tabletop, a mid-portion of the tabletop may be cracked easily. In order to enhance the rigid structure of the banquet table, the tabletop must be made of stiffness material such as wood or metal. However, the wooden or metal tabletop will increase the overall weight of the banquet table that reduces the portability of the banquet table.

In order to enhance the portability of the banquet table, the tabletop is made of lightweight material such as plastic. One of the common technologies to manufacture the

tabletop is known as the plastic "air-blow" molding technique. Therefore, the overall weight of the banquet table will be substantially reduced by the plastic tabletop. However, such banquet table having the plastic tabletop has several drawbacks.

The strength of such plastic tabletop is weak that the mid-portion of the plastic tabletop may be cracked easily due to the downward loading force. Accordingly, the tabletop generally comprises a plastic made top panel, two metal made supporting arms longitudinally mounted under the top panel, and a metal made reinforcing arm transversely mounted below a mid-portion of the top panel between the two supporting arms to substantially increase the strength of the top panel.

In addition, in order to foldably attach the table leg to the tabletop, the table leg comprises a standing leg rotatably mounted between the supporting arms and a folding leg pivotally mounted between the standing leg and the reinforcing arm such that the standing leg is capable of pivotally folding under the top panel of the tabletop. As a result, the reinforcing arm not only enhances the strength of the top panel but also rigidly supports the table leg in a foldable manner. In other words, the plastic tabletop must include the reinforcing arm in order to form the banquet table.

Summary of the Present Invention

A main object of the present invention is to provide a foldable pivot leg assembly for a banquet table with a plastic tabletop, wherein the foldable pivot leg assembly is directly mounted under the plastic tabletop for enhancing the supporting structure and the portability of the banquet table.

Another object of the present invention is to provide a foldable pivot leg assembly for a banquet table with a plastic tabletop, which comprises a supporting frame not only functioning as a conventional folding leg to guide the folding movement of the leg frame but also substantially reinforcing the strength of the plastic tabletop. In other words, the banquet table does not require to incorporate with the conventional reinforcing

arm so as to minimize the manufacturing cost of the banquet table having the plastic tabletop.

Another object of the present invention is to provide a foldable pivot leg assembly for a banquet table with a plastic tabletop, wherein the foldable pivot leg assembly is adapted to self-assemble to the plastic tabletop. The plastic tabletop and the foldable pivot leg assembly can be shipped and handled individually and then assembled later on by the importers or the customers in a Do-It-Yourself manner. Therefore, the handling and shipping cost of the foldable banquet table can be further reduced for the manufacturer. The shipping space can be reduced accordingly too. In other words, both the tabletop and the foldable pivot leg assembly are replaceable individually while the conventional banquet table must be thrown away when one of the parts is damaged.

Another object of the present invention is to provide a foldable pivot leg assembly for a banquet table with a plastic tabletop, wherein the banquet table can be quickly and easily folded up for storage and carriage and unfolded for use.

Accordingly, in order to accomplish the above objects, the present invention provides a foldable pivot leg assembly for a banquet table with a plastic tabletop which comprises a plastic made top panel and two tabletop supports longitudinally supported under the top panel along two side edge portions thereof respectively, comprising:

a pair of table supporting frames adapted for foldably and spacedly affixing to the tabletop, wherein each of the table supporting frames comprises:

a leg frame having an upper end portion for pivotally mounting between the two tabletop supports; and

a supporting frame comprising two supporting arms each having a lower retention portion and an upper supporting portion for transversely and pivotally mounting at the respective tabletop support, and a folding frame pivotally connected between the retention portions of the supporting arms and the leg frame in such a manner that in a folded position, the leg frames are pivotally and inwardly folded for resting under the top panel, and in an unfolded position, the leg frames are firmly and rigidly supported by the supporting frame and pivotally and outwardly folded for perpendicularly standing under the top panel.

These and other objectives, features, and advantages of the present invention will become apparent from the following detailed description, the accompanying drawings, and the appended claims.

Brief Description of the Drawings

Fig. 1 is an exploded perspective view of a banquet table incorporating with a foldable pivot leg assembly according to a preferred embodiment of the present invention.

Fig. 2 is an exploded perspective view of the foldable pivot leg assembly for the banquet table according to the above preferred embodiment of the present invention.

Fig. 3 is a perspective view of the banquet table in a folded position according to the above preferred embodiment of the present invention.

Fig. 4 illustrates an alternative mode of the plastic tabletop incorporating with the foldable pivot leg assembly according to the above preferred embodiment of the present invention.

Detailed Description of the Preferred Embodiment

Referring to Fig. 1 of the drawings, a banquet table according to a preferred embodiment of the present invention is illustrated, wherein the banquet table comprises a plastic tabletop 10 and a foldable pivot leg assembly 2 mounted thereunder.

The tabletop 10 comprises a plastic made top panel 11 and two tabletop supports 12 longitudinally supported under the top panel 11 along two side edge portions thereof respectively.

The foldable pivot leg assembly 2 comprises a pair of table supporting frames 20 adapted for foldably and spacedly affixing to the tabletop 10, wherein each of the table supporting frames 20 comprises a leg frame 30 having an upper end portion for pivotally mounting between the two tabletop supports 12.

Each of the table supporting frames 20 further comprises a supporting frame 40 comprising two supporting arms 41 each having a lower retention portion 411 and an upper supporting portion 412 for transversely and pivotally mounting at the respective tabletop support 12, and a folding frame 42 having two ends pivotally connected with the retention portions 411 of the supporting arms 41 and the leg frame 30 respectively in such a manner that in a folded position, the leg frames 30 are pivotally and inwardly folded for resting under the top panel 11, and in an unfolded position, the leg frames 30 are firmly and rigidly supported by the supporting frame 40 and pivotally and outwardly unfolded for perpendicularly standing under the top panel 11.

According to the preferred embodiment, the top panel 11 is a single layer tabletop preferably made of lightweight but rigid material, such as plastic, by plastic molding or FRP. It is worth to mention that the top panel 11 can be a double-layer tabletop that a top layer is overlapped on a bottom layer to define an air chamber therebetween.

The top panel 11 of the tabletop 10, having a rectangular shaped, defines a surrounding rim 111 downwardly extended from the edge portion of the top panel 11 respectively to define a receiving cavity 110 within the surrounding rim at a bottom side

of the top panel 11 such that the foldable pivot leg assembly 2 is adapted to foldably receive within the receiving cavity 110 of the top panel 11 at the folded position, as shown in Fig. 3.

As shown in Fig. 1, the surrounding rim 111 has an outer sidewall 1111 and an inner sidewall 1112 to define a receiving track 1113 longitudinally formed under the top panel 11 along the respective side edge portion thereof wherein the tabletop supports 12 are securely mounted within the receiving tracks 1113 respectively.

Each of the tabletop supports 12, which is made of rigid material such as metal, is an elongated member extended from one side end portion of the top panel 11 to another opposed side end portion thereof, so as to substantially enhance the rigid structure of the top panel 11.

As shown in Fig. 2, each of the leg frames 30 comprises a transverse member 31 rotatably extended between the two tabletop supports 12 and two supporting legs 32 downwardly extended from the transverse member 31 in such a manner that the two supporting legs 31 are adapted to rotatably fold between the folded position and the unfolded position. Accordingly, the two transverse members 31 are transversely extended along two side portions of the top panel 11 respectively so as to enhance the strength of the top panel 11.

Each of the supporting arms 41, having a L-shaped, defines the retention portion 411 pivotally connected to the folding frame 42 and the supporting portion 412 for transversely and pivotally mounting at the respective tabletop support 12 at a mid-portion of the top panel 11 so as to enhance the rigid structure of the top panel 11 of the tabletop 10 for supporting more loading weight thereon, especially at the mid-portion of the top panel 11 of the tabletop 10. As shown in Fig. 1, the retention portions 411 of the two supporting arms 41 are parallelly extended alongside to pivotally connect to the folding frame 42.

The folding frame 42 comprises two folding arms 421 pivotally connected to the leg frame 30 and a pivot joint 422 pivotally connecting end portions of the folding arms 421 with end portions of the supporting arms 41, wherein the end portions of the supporting arms 41 are sandwiched between the end portions of the folding arms 421, so as to hold the supporting arms 41 in position with respect to the tabletop 10. Since the

supporting arms 41 are capable of detaching from the tabletop 10, the supporting arms 41 can be secured by sandwiching the end portions of the supporting arms 41 between the end portions of the folding arms 421.

As shown in Fig. 2, the pivot joint 422 can be a bolt and nut connecting device, a screw, or a rivet to pivotally connect the retention portions 411 of the two supporting arms 41 with the folding arms 421. It is worth to mention that the pivot joint 422 is arranged to pivotally connect the two supporting arms 41 with the two folding arms 421 to provide a pivot movement therebetween so as to control the folding operation of the each of the table supporting frames 20.

It is worth to mention that the pivot joint 422 can be embodied as two joint lockers to pivotally connect the end portions of the two supporting arms 41 with the end portions of the folding arms 421 respectively. In addition, the end portions of the supporting arms 41 are flattened to pivotally connect to the folding arms 421 via the pivot joint 422 so as to ensure the pivot movement of the supporting arms 41 with respect to the folding arms 421.

Each of the supporting frames 40 further comprises a ring-shaped locker 43 slidably mounted to the supporting arms 41 along the retention portions 411 thereof for locking up the supporting arms 41 with the folding frame 42 at the pivot joint 422 so as to prevent an unwanted pivotal movement of each of the supporting frame 40 when the leg frame 30 is in the unfolded position.

As shown in Fig. 1, the banquet table further comprises an attachment arrangement 50 for mounting the foldable pivot leg assembly 2 to the tabletop 10, wherein the attachment arrangement 50 comprises four attachment members 51 and four coupling members 52, wherein the four attaching members 51 are spacedly extended from the two tabletop supports 12 at two side portions of the top panel 11 respectively to rotatably insert into outer ends of the two transverse members 31 respectively so as to pivotally connect the leg frames 30 with the top panel 11 and wherein the four coupling members 52 are spacedly extended from the two tabletop supports 12 respectively at the mid-portion of the top panel 11 to rotatably insert into outer ends of the four supporting arms 41 so as to pivotally connect the supporting arms 41 with the top panel 11.

According to the preferred embodiment, the top panel 11 further has a plurality of guiding slots 101 spacedly formed on the inner sidewall 1112 of the surrounding rim 111 to respectively align with the attachment members 51 and the coupling members 52 such that the tabletop supports 12 are connected to the leg frames 30 and the supporting arms 41 via the attachment arrangement 50 through the guiding slots 101 of the top panel 11.

Alternatively, the attachment arrangement 50' contains four attachment holes 51' and four coupling holes 52', wherein the four attaching holes 51' are spacedly provided at the two tabletop supports 12 at two side portions of the top panel 11' for outer ends of the two transverse members 31' to rotatably insert thereinto respectively so as to pivotally connect the leg frames 30' with the top panel 11' and wherein the four coupling holes 52' are spacedly provided at the two tabletop supports 12' respectively at the mid-portion of the top panel 11' for outer ends of the four supporting arms 41' to rotatably insert thereinto respectively so as to pivotally connect the supporting arms 41' with the top panel 11', as shown in Fig. 4.

Likewise, the top panel 11' further has a plurality of guiding slots 101' spacedly formed on the inner sidewall 1112' of the surrounding rim 111' to respectively align with the attachment holes 51' and the coupling holes 52' such that the tabletop supports 12' are connected to the leg frames 30' and the supporting arms 41' via the attachment arrangement 50' through the guiding slots 101' of the top panel 11.

It is worth to mention that the foldable pivot leg assembly 2 can be disassembled from the tabletop 10 by detaching the leg frames 30 and the supporting frames 40 from the tabletop supports 11 via the attachment arrangement 50. In addition, when the pivot joints 422 are removed, the supporting arms 41 are detached from the folding frames 42 so as to detach the supporting arms 41 from the tabletop 10. Therefore, the foldable pivot leg assembly 2 can be further disassembled such that the tabletop 10 and the foldable pivot leg assembly 2 can be shipped and handled individually and then assembled later on by the importers or the customers in a Do-It-Yourself manner. The handling and shipping cost of the banquet table can be further reduced for the manufacturer. The shipping space can be reduced accordingly too. Moreover, both the tabletop 10 and the foldable pivot leg assembly 2 are replaceable individually while the conventional banquet table must be thrown away when one of the parts is damaged.

It is worth to mention that the configuration of the tabletop 10 can be further simplified that only requires the plastic made top panel 11 and the tabletop supports 12 since the foldable pivot leg assembly 2 is adapted to enhance the rigid structure of the top panel 11 such that the overall weight of the tabletop 10 can be substantially reduced to further minimize the shipping and handling costs of the banquet table.

Fig. 4 illustrates an alternative mode of the tabletop 10' wherein the tabletop 10' can be overlappedly folded in half to further reduce the size thereof. As shown in Fig. 4, the tabletop 10' further comprises a folding joint 13' formed at a mid-portion of the tabletop 10'. Accordingly, the folding joint 13' is formed at each of the tabletop supports 12' at a position between the two table supporting frames 20 wherein the top panel 11' of the tabletop 10' defines two side panels 112' rotatably mounted with each other via the folding joint 13' in such a manner that the side panels 112' are adapted to fold in an overlapped manner to reduce the size of the tabletop 10'. In other words, the foldable pivot leg assembly 2 is adapted to incorporate with any kind of the tabletop 10 having two tabletop supports 12.

One skilled in the art will understand that the embodiment of the present invention as shown in the drawings and described above is exemplary only and not intended to be limiting.

It will thus be seen that the objects of the present invention have been fully and effectively accomplished. It embodiments have been shown and described for the purposes of illustrating the functional and structural principles of the present invention and is subject to change without departure form such principles. Therefore, this invention includes all modifications encompassed within the spirit and scope of the following claims.